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CONTENTS:

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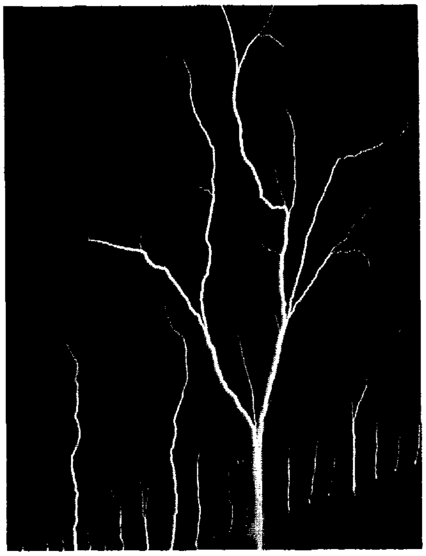
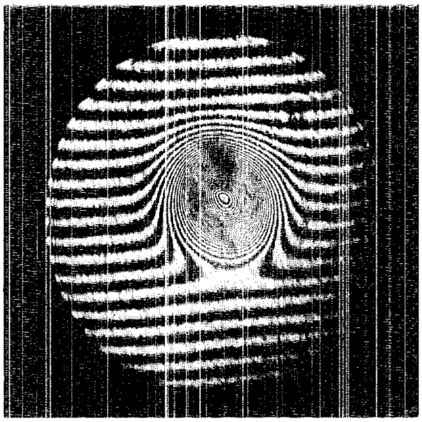
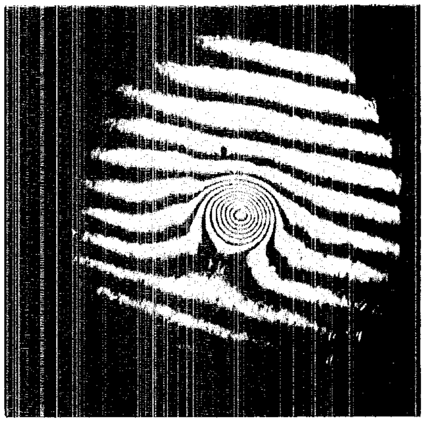


COVER:

The cover photo is of a 55,000-volt discharge from prototype collector plates on mylar insulating material. The plates are being tested at the Los Alamos Scientific Laboratory for use in the Sherwood Program's Scyllac, the next step on the road to achieving the controlled release of thermonuclear (fusion) energy for peaceful purposes. The plates receive an electrical current, which creates a magnetic field to contain a 50-million-degree plasma. The photograph was taken by PUB-1's Bill Jack Rodgers.

Just a Few Scylla Microseconds Longer





The interferogram at left was taken of the Scylla IV-3 plasma. The one at right is from Scylla IV. It shows fewer fringe areas and indicates a less dense and less evenly contained plasma.

By
Charles
Mitchell

An increase from 2½ to 10 millionths of a second isn't much. But when Scylla IV-3 sustains a thermonuclear reaction for that 7½ microseconds longer, it represents a 300 per cent improvement over achievements with Scylla IV.

Scylla IV was another step in the constant process of evolution in LASL's Project Sherwood. Like its predecessors Scylla I, Scylla G, Scylla III and others, Scylla IV was designed and built to advance our knowledge of controlled thermonuclear reactions. Basically, these reactions are initiated by compressing an ionized light-element gas such as deuterium in a very strong magnetic field. This compressed and heated gas is called a plasma. The goal of the researchers is to contain a 50-million-degree plasma in the magnetic field. All of Project Sherwood's devices such as Scylla IV were developed and used to attempt to raise the plasma density and temperature and to prolong the time that the plasma is contained. At present, LASL's Sherwood staff is looking forward to Scyllac (Scylla-closed) a device which they hope will approximate the eventual thermonuclear reactor much more closely than present devices.

Scylla I produced the world's first scientifically proven controlled thermonuclear reaction in 1957. That device has since become a permanent exhibit at the Smithsonian Institution. Scylla IV had a much larger energy storage system, more refined diagnostic equipment, and advanced component design. Fred Ribe, group leader of P-15, directed work which led to initiation and containment of thermonuclear reactions for short times. The fact that these reactions could be reproduced allowed study of the behavior of the plasmas and the problems associated with creating and maintaining the reactions.

Just as Scylla I was built to see if

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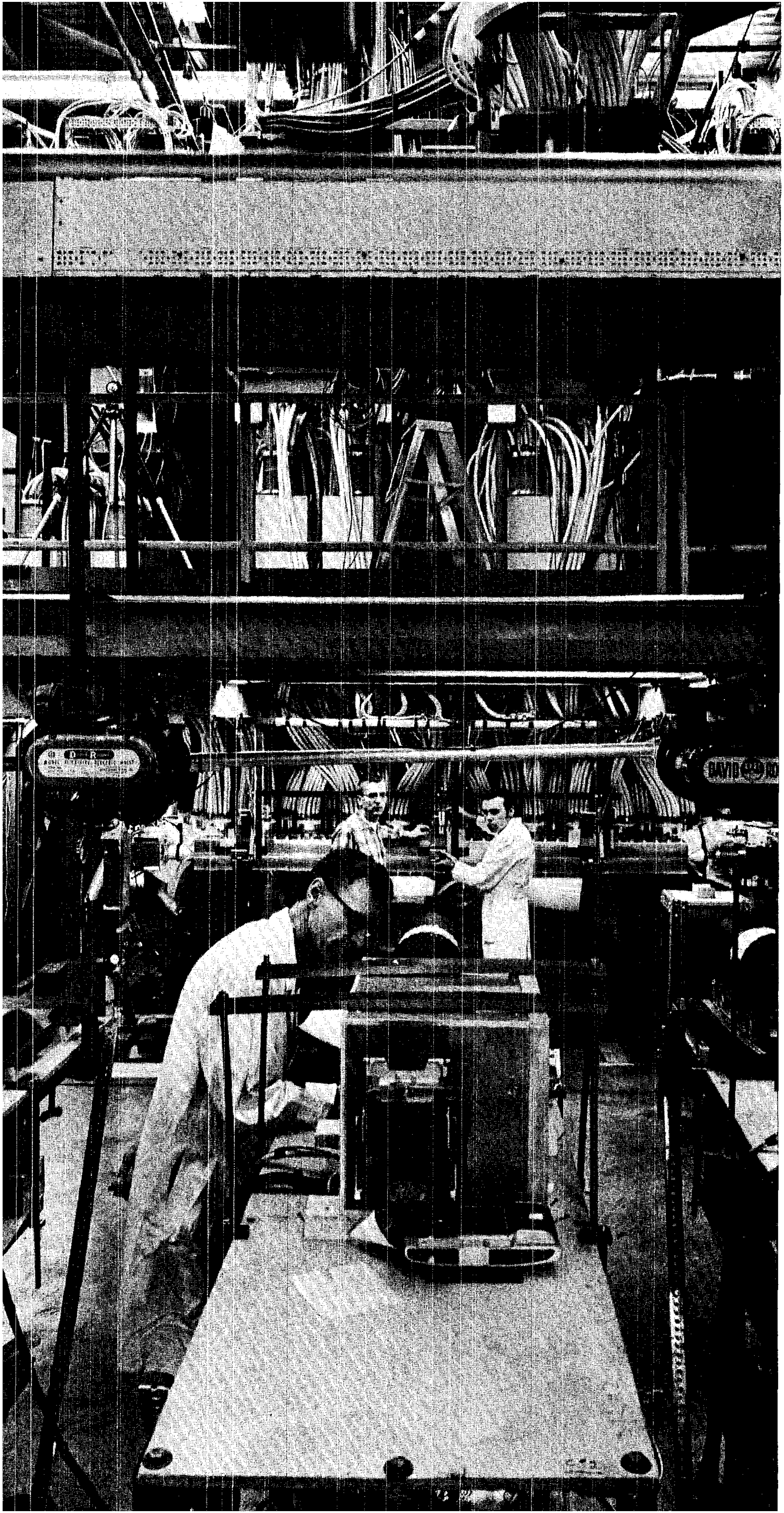

such reactions were possible, Scylla IV was a tool used to study both the equipment and phenomena associated with controlled thermonuclear reactions. As such, it did its job very well. While work with Scylla IV was being carried on, however, P-15 and P-16 were designing and constructing facilities and components for Pre-Scyllac and Scyllac. To build these devices, new triggering mechanisms (which "turn on" the magnetic field), compression coils, diagnostic equipment and a number of new concepts had to be tested. In September of 1968, Scylla IV was shut down and modifications started with these goals in mind, under the direction of Warren Quinn, associate group leader at P-15.

A number of problems were to be faced in modifying Scylla IV. When a heated plasma is contained by a magnetic field in a linear tube, the time the plasma can be contained is limited, in part, by the "end losses" or "leakage" of the heated plasma out of the ends of the tube. In addition, the duration of the magnetic field which compresses and contains the plasma needed to be extended to give longer containment times. In Scylla IV the portion of the tube within the magnetic field was one meter (about three feet) long. This was changed to three meters, (10 feet) from which the machine got its new name—Scylla IV-3. The energy storage system was increased by 50 per cent to partially compensate for this increase in coil length. In theory, the end losses from a longer tube would not be eliminated but the time required for the plasma to break down and leak out would be extended.

Having increased the coil length and increased the energy storage

Ed Little, P-15, adjusts the focus of a "streak" camera used in analyzing plasma. Warren Quinn and Juan Baldonado, both P-15, adjust the mirrors which "look into" the new three-meters-long Scylla IV-3 tube.

system, the problem of extending the containment time of the plasma had to be faced. The designers decided that this could be achieved by the addition of a magnetic "crowbar". As the name implies, this system applies a magnetic "lever" to the initially compressed plasma. Crowbar spark gaps, designed by Robert Gribble of P-15 were mounted in a "piggy-back" fashion on the main spark gaps. These gaps were to fire at some very short time after the main gaps. The crowbar gaps act as switches which keep the current flowing through the compression coil rather than letting it return in normal fashion to the energy storage bank.

With these modifications and others completed, Scylla IV-3 was started in November of this year. The results of the runs were dramatic. A thermonuclear reaction was initiated and neutrons emitted for 10 microseconds. While 10 one-millionths of a second does not seem long, it should be noted that Scylla IV produced neutrons (a valid measurement of the existence and duration of such a reaction) for only 2½ millionths of a second. In other words, lengthening the coil, increasing the energy storage system by 50 per cent, and adding the crowbar system had extended the time of containment of the plasma by 300 per cent.

In this run, Scylla IV-3 produced a total of 300 million neutrons during the 10 microsecond period. Scylla IV had produced a total of two billion neutrons. The fact that the "new" Scylla produced only one sixth as many neutrons as the "old" is understandable since the magnetic field energy storage capacity had not been tripled as the length of its coil had been. Lack of space and money made such a large energy storage increase impossible.

Data from the Scylla IV-3 runs indicate that the crowbar worked very well in extending the time the plasma was contained and that the increased coil length reduced the end losses. This and other informa-

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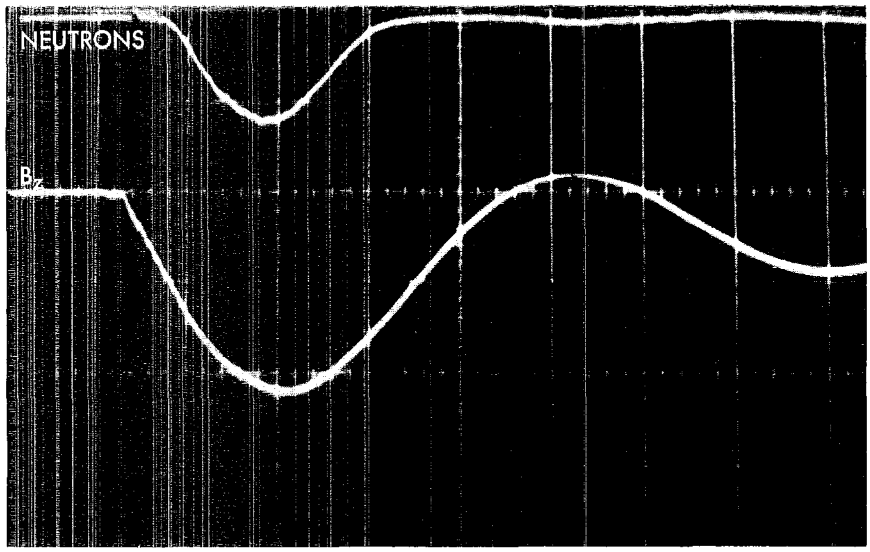
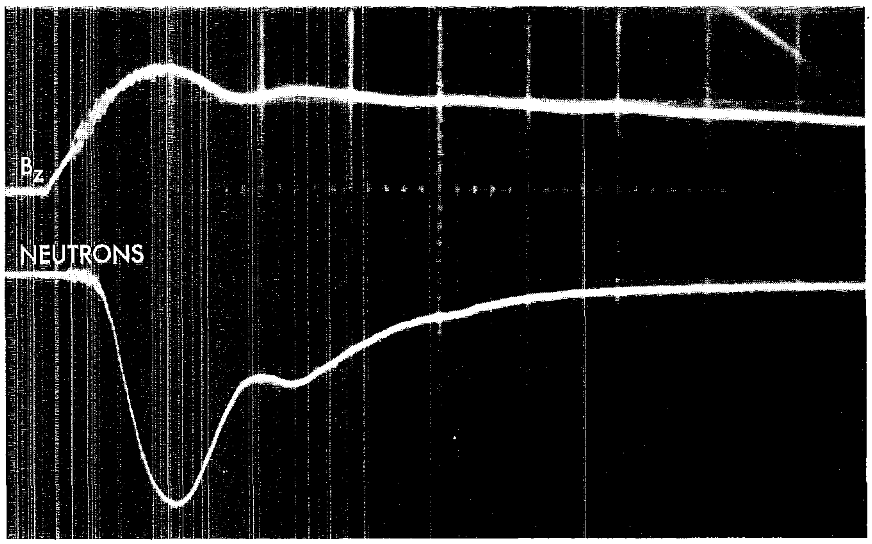
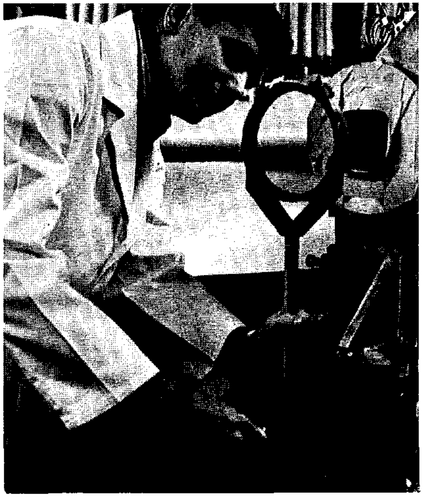


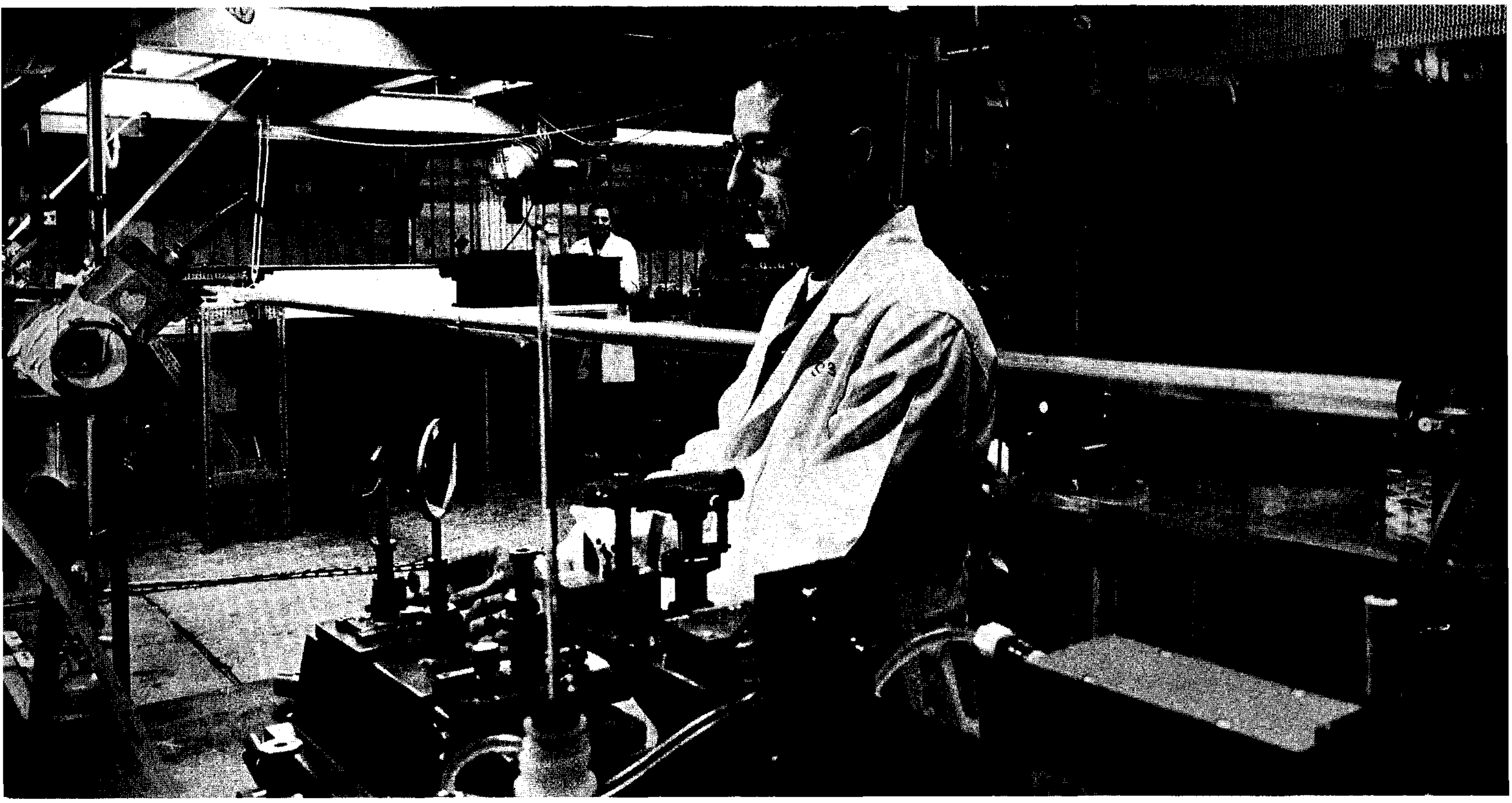


In these oscilloscope tracings, "Bz" is the duration of the magnetic containment field. "Neutrons" denotes how long neutrons were produced. In the top illustration, each square is equal to 1-millionth of a second. It was made from Scylla IV and shows neutrons being produced for only 2½-millionths of a second while the duration of the magnetic field was only about 4-millionths of a second. In the lower tracing each square is equal to 2-millionths of a second. It was made during a run of Scylla IV-3 and shows neutrons were emitted for over 10-millionths of a second. The magnetic field was sustained for over 18-millionths of a second.



The laser light, used to make the interferograms, is focused by Richard Siemon, P-15. In the background are the cables which supply power to the plasma compression coil.

Below, half of the laser beam passes through the plasma contained in the compression coil at left. The long tube at right is the path of the second half of the beam. Quinn is in the foreground and J. D. Smith, P-15, is standing behind the camera which records interferometry information.

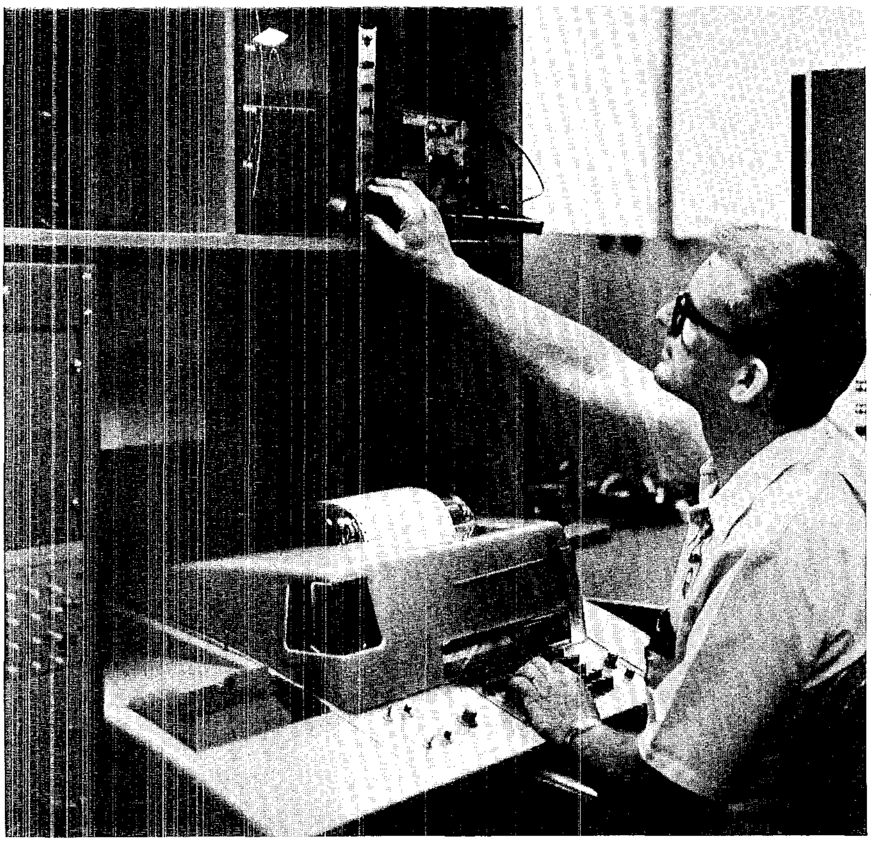


tion gained is, in many cases, directly applicable to the Scyllac program. For example, the spark gaps used on Scylla IV-3 will also be used on Scyllac. The crowbar will also be used although in a much expanded form. Instead of 324 gaps, Scyllac will use 3,240. Much of the information gained from using the increased coil length shed light on the behavior of the plasma in a longer tube. The tube to be used in Scyllac will be 10 meters long.

Two interesting diagnostic tools are now being developed and used by P-15 on the Scylla IV-3 device and both will be applied to Scyllac. Richard Siemon of P-15 is working on a laser interferometer which, through the use of laser light, gives a picture of how the compressed plasma looks while contained by the magnetic field. In operation, a beam of laser light passes through a device called a beam splitter. This device divides the light beam into two parts, one of which passes through the plasma and is focused on a piece of film. The second beam, through a series of prisms and lenses is directed parallel to the first beam but outside of the area containing the plasma. It too is focused on the film. Where the two beams meet, a series of interference fringes are formed. A picture of these fringes, without plasma in the tube, looks like a circle with a series of straight lines across its face. When a dense, heated plasma is in the tube, these straight fringes are distorted because of the effect of the dense plasma on one light beam. When the light is passed through a plasma, the fringes, their location and spacing with respect to the axis of the containment field, can yield a great deal of information about how the plasma is behaving. Work with this device on Scylla IV-3, to improve the resolution and techniques of interpretation of the photographs, will be carried over for application on the Pre-Scyllac device.

While the crowbar did, in fact, work well, Warren Quinn and George Sawyer of P-15 are now working on a computer system designed by Dave Brown of P-1. This system will monitor all of the spark gap triggers in Scylla IV-3 to see when they are firing. This analysis is a necessary function because the firing time of the gaps is critical in determining the time of plasma containment. While only 324 gaps are monitored on Scylla IV-3, 3,420 will have to be checked on Scyllac. Before the computer system was designed, all of this work had to be done by hand. In addition to "looking at" all of the trigger gaps, another section of the computer system, designed by John Lillberg and Robert Gribble, will record and store, for later retrieval, one hundred oscilloscope traces. These traces will give the researchers information on the time of duration of the magnetic field and the number of neutrons emitted.

Because of the work done by P-15 with the "old" Scylla IV and the Scylla IV-3 devices, many of the Pre-Scyllac and Scyllac design concepts and components have already been investigated and performance characteristics proven. Through this process of evolution information has been gained which leads the researchers to hope that they may be able to solve the problems of making a closed plasma ring in the toroidal Scyllac device. Scylla IV-3 has proven to be another LASL milestone in the advancement of controlled thermonuclear reactions.



George Sawyer, P-15 alternate group leader, is seated at the console of the computer which will be used to monitor Scylla IV-3 and Scyllac performance.

Robert Shreffler's Two Years with NATO

When the North Atlantic Treaty Organization formed its Nuclear Planning Group about three years ago, the United States agreed to furnish the 15-nation alliance with a nuclear weapons expert to serve on the Secretary General's staff. This man was Robert Shreffler, alternate Weapons division leader at the Los Alamos Scientific Laboratory.

Shreffler was granted a two-year leave of absence to fill the position. He returned to the Laboratory from Brussels in mid-September.

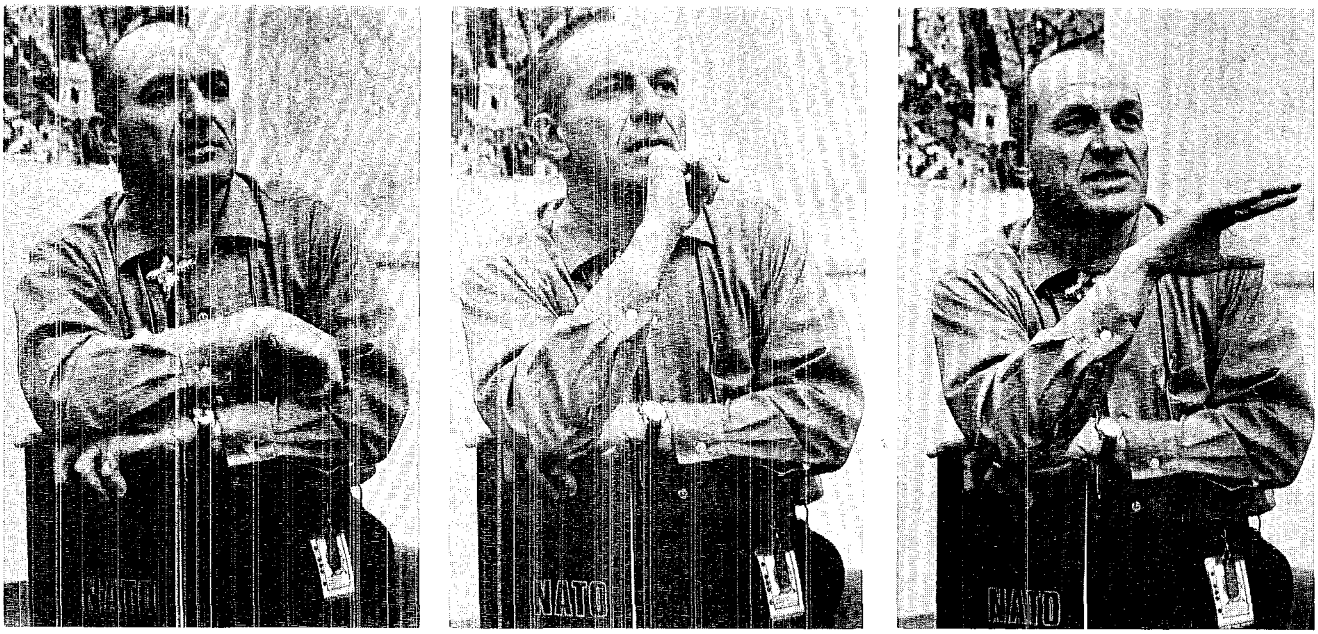
"I never saw a piece of paper that stated how I was picked. When my name came up, I knew little about the job except that it would be with the Nuclear Planning Group," Shreffler said. "I spent about a month in Washington preparing for the task, reading and discussing the history of the Group with people in the State Department and Department of Defense before going to Brussels."

The Nuclear Planning Group is composed of defense ministers from seven countries, four of which—the United States, the Federal Republic of Germany, Italy and Great Britain—have permanent members. The other three seats are filled on a term basis by representatives of the other member countries—Belgium, Canada, Denmark, Greece, the Netherlands, Norway and Turkey.

NATO was formed 20 years ago. Although instrumental in the political, economic and social fields of its members, the primary purpose of the alliance is a military one. The cohesive factor of this community of nations is mutual defense. Its members agreed to settle disputes peacefully; to develop a capacity to resist armed attack; to regard an attack on one as an attack on all; and to take necessary action to repel any attack under the United Nations Charter.

To the end that NATO is an instrument of collective self-defense, it strives to keep abreast of the type of forces and weapons that would be needed to meet any eventuality, and was one reason for the creation of the Nuclear Planning Group.

"The Nuclear Planning Group," Shreffler said, "was formed to investigate the nuclear defense problems in the alliance, particularly in Europe, and to attempt to resolve its many issues by de-



Robert Shreffler talks about his two-year assignment on the NATO Secretary General's staff.

velopment of policy, based upon specific studies, which guide the military and political decision makers in the exercise of their responsibilities.

"This task involved a close association with political and military people in Brussels, and frequent visits to the capitals of the NATO countries, each of which had different problems with respect to nuclear weapons. Other trips were made with NATO representatives to various military installations to study methods of using nuclear weapons.

"The activities of the Nuclear Planning Group should lead to an improved understanding of NATO defense by all its members, and ultimately to the modification in the way the NATO forces are structured to best meet the requirements of possible nuclear war. This should eventually be reflected in requirements for a different variety and number of improved weapon systems.

"The work-day was eight hours. But, it turned out to be 12 hours when you threw in the demands of the job, transportation to and from work, and the European lunch hour, which could stretch from one to two hours."

Shreffler was accompanied to Belgium by his wife, Laura, and their 16-year-old daughter, Jane, who is now a freshman at the University of New Mexico. Their son, Mark, also a student at the University, joined them in the summers.

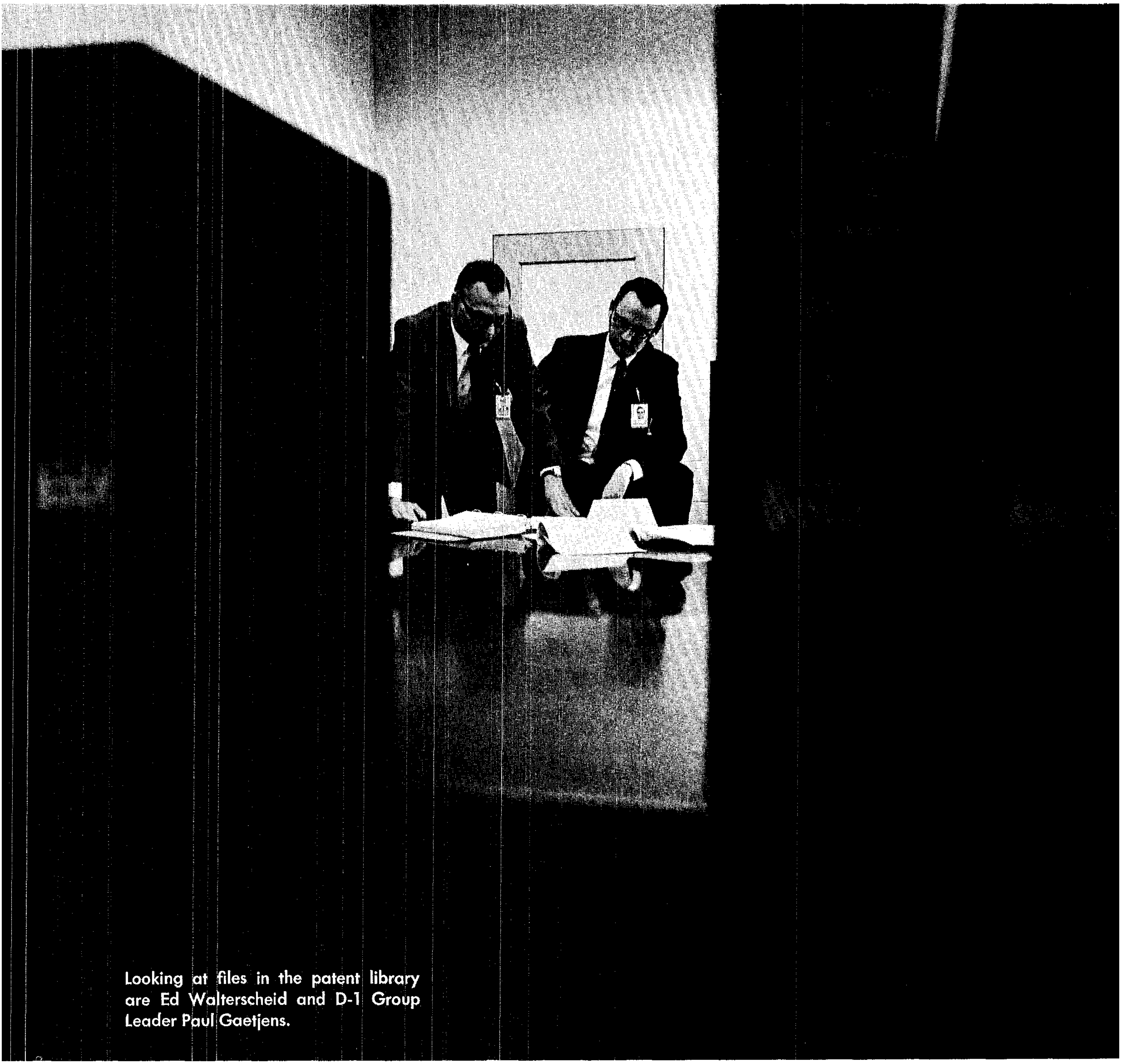
They lived in a large apartment in Brussels. "We made many weekend trips together and some that were more extensive to such places as Spain, Italy, Germany and France," he said. "The official languages of NATO are English and French. Since we all speak at least fractured French, we had little problem in this regard. My daughter went to a Department of Defense American School in Brussels where she learned to speak French quite well.

"We enjoyed reasonably intense social activities within our NATO circle of friends and those from the American industrial community. There were frequent cocktail parties and dinners—never dances. My wife traveled frequently with the American Women's Club and on one occasion escaped with them as far as Israel.

"Brussels is a comfortable place to live and the food is excellent."

The Patent Process

By Bill Richmond



Looking at files in the patent library are Ed Walterscheid and D-1 Group Leader Paul Gaetjens.

In 1934 Leo Szilard obtained a British patent on nuclear fission. Two years later the British had second thoughts about the possible military applications of nuclear fission—even though it was still just a theory—and slapped a secrecy order on the patent. In 1938 they attempted to rescind the patent but then found that fission had become a reality. Today, a natural phenomenon such as the fission process is not patentable in this country or in Great Britain.

In 1961 the British issued a patent on a process whereby a rocket could be propelled in space by the detonation of a series of nuclear explosions. The idea for this process largely originated with Stan Ulam who was a research advisor at LASL at that time. Although a considerable amount of time and effort was spent to develop the concept—as those familiar with Project Orion may recall—the U.S. Patent Office ultimately refused to grant a patent because the patent application did not sufficiently disclose the means by which the rocket would in fact be propelled.

These two items illustrate quite well some of the intricacies involved in patenting an invention: what is patentable at one time and place may not be so at another. They show, too, that nuclear fission and nuclear rocket propulsion, two areas of scientific research with which LASL is intimately connected, have a long and interesting patent history. It is thus not surprising that a great many of the patents originating at LASL are somehow involved with one or the other.

Each employee who hires on at LASL—staff member, technician or secretary—signs a patent agreement "in part consideration of my employment" and agrees that the rights to any invention or discovery become the property of the Atomic Energy Commission and/or the University of California.

The responsibility for patenting inventions made in the course of the Laboratory's research rests with group D-1 consisting of Paul Gaetjens, group leader, and Ed Walterscheid.

"In a year's time about two dozen U.S. patents are issued to the AEC as a result of work done within the Laboratory," Gaetjens said. "More than 400 have been issued as a result of LASL work since the Laboratory was formed."

These figures do not include the foreign patents which are issued on the same work. Approximately 130 foreign patents are issued per year. These are filed mainly in the highly industralized countries of Germany, England, France, Japan, Switzerland, Italy, the Netherlands, Sweden, Denmark and Australia.

"A patent is valid only within the sovereign boundaries of the country issuing it," Gaetjens said. "That's why foreign patents are important."

All reports and papers submitted to the technical information group, D-6, are routed to D-1 for patent review. If something in the article looks promising, i.e., might be of patentable interest, D-1 contacts the author for additional information. In some cases, D-1 is contacted directly by the would-be inventor as soon as he feels he might have something new. This process is favored by D-1 as it speeds up the lengthy patenting procedure.

The first step in obtaining a patent is the letter of disclosure. This is simply a form containing the germ of the idea, the concept of the possibly unique process or invention. This disclosure is then forwarded to the AEC patent attorneys in Washington together with a recommendation from D-1 as to whether a patent application should be filed.

"All we can do is recommend," Gaetjens said. "It is the prerogative of the AEC to make the final determination as to whether U.S. and foreign protection should be sought."

This determination is based on certain criteria, of which two of the

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In his office Gaetjens reviews a patent docket.

most important are: (1) Is it patentable? and; (2) Is it of sufficient interest to the AEC to file a patent?

If the answer to the two questions is affirmative, the AEC patent attorneys conduct a patent search to be sure the prime requisites of a patent are met: It is novel and it has practical uses.

There are other conditions to patentability, however. For example, it must not be obvious to a person having an ordinary skill in the art; it cannot be patented if it is useful solely in the utilization of special nuclear material or atomic energy in an atomic weapon; and finally, it cannot be patented if it is classified.

These last two conditions are somewhat interrelated and need further explanation. While a patent will not be granted for an invention useful only in or as a nuclear or thermonuclear weapon, this does not mean that the invention cannot make use of nuclear or thermonuclear detonations. The Laboratory, for example, has obtained a patent on the production of isotopes from thermonuclear explosions.

The mere fact that an invention concerns classified subject matter does not mean that it is not patentable. Rather, no patent will be forthcoming until the subject matter is declassified. Each year then, the subject matter is reviewed to determine if it has been declassified, and if declassification has occurred, the patent will then be issued.

Among the areas in which the AEC is normally NOT interested in filing for a patent are: relatively minor and obvious variations of hardware components, i.e., nuts and bolts; laboratory technicians' suggestions for merely doing their job better (this does not mean that patentable inventions are not sought from technicians—they most definitely are); the "one-shot" device for scientific research, in which neither the government nor anyone else is ever likely to build a second one.

It takes an average of about three years from the filing of the disclosure to the issuance of the patent, which is then good in the U.S. for 17 years from the date of issuance. After that time the patent idea falls into the public domain. However, in the case of LASL-AEC patents, any U.S. citizen may go to the AEC and obtain a royalty-free license to use the ideas or processes contained in the patent.

The field of patent law is an extremely complicated one, but some of the most frequent questions directed to D-1 have relatively simple answers:

What if the AEC does not want to patent my idea?

In the event the AEC decides not to seek patent protection for a discovery or invention, the University of California may desire to do so. Whereas no compensation or payment is made for an invention assigned to the AEC, assignment to the University may result in the inventor receiving up to 50 percent of any subsequent royalties earned, after costs, on the patent. Patents are issued in the name of the inventor regardless of whether they are assigned to the AEC or University.

What constitutes invention?

The vast amount of litigation concerning patents clearly shows that there is no easy answer to the question. However, the U.S. Congress has sought to define patentable invention as ". . . any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof which promotes the useful arts."

What happens if information about my invention is published in a technical journal before the patent is filed?

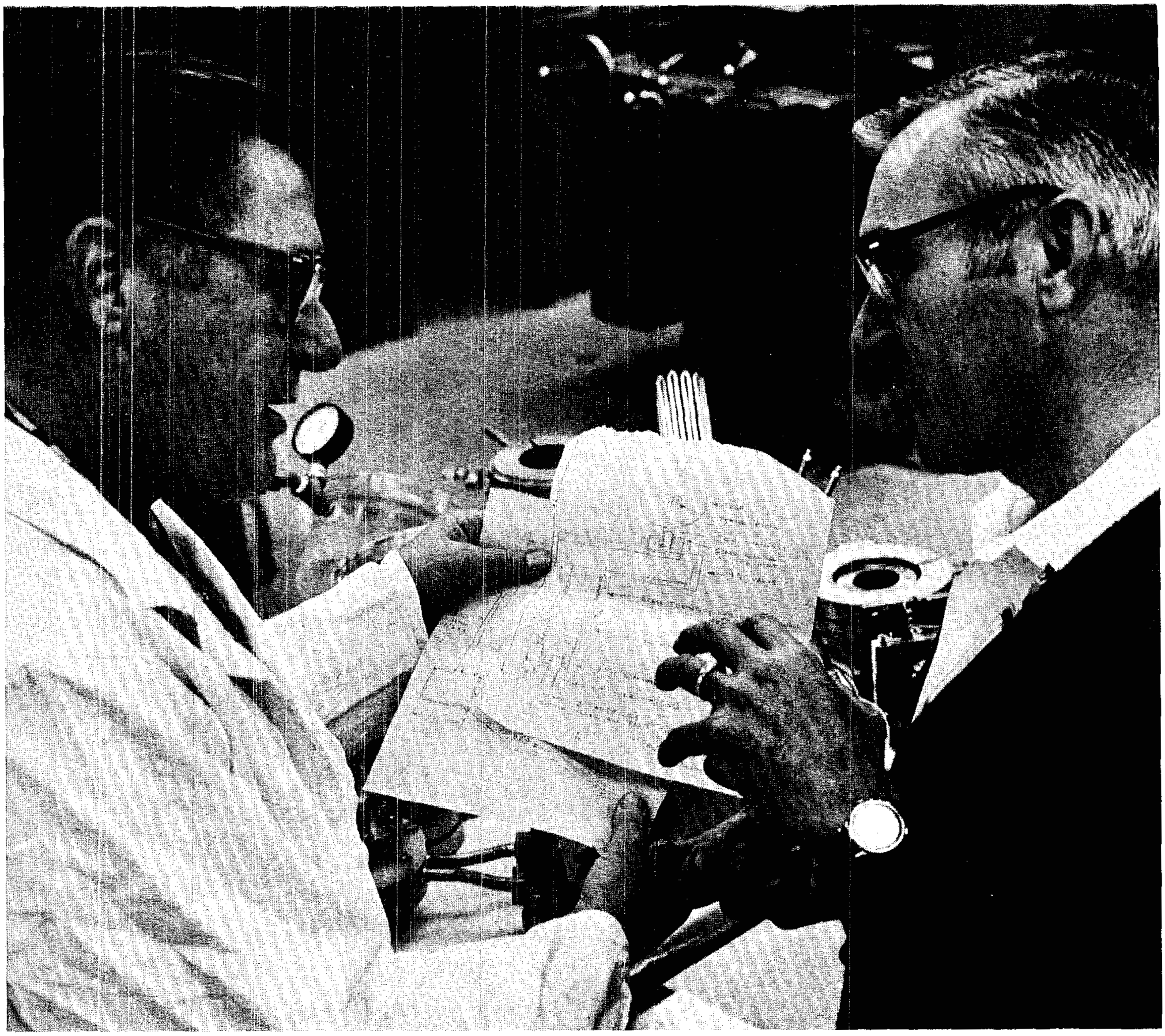
The U.S. policy with respect to publication varies from that of many other countries. In the United States, a patent may be filed for within one year of the date of publication, whereas in certain foreign countries publication bars filing. This is why D-1 may withhold publication of a report or article until a decision is reached by the AEC whether or not to foreign file. There

is some controversy as to what constitutes publication. Clearly, release of information to the news media or publication of an article concerning the invention in a journal is publication. So, too, is release of a laboratory report for wide external distribution. Publication also occurs if a talk given at a meeting or a symposium is reproduced in proceedings. The date of publication is when the proceedings are distributed. If an internal laboratory report is made available for external distribution to more than a very limited number of persons, it should be considered as a publication.

What is the general patent policy of the AEC?

The patent policy of the AEC is essentially defensive in nature. That is, its purpose is primarily to protect the AEC in its use of inventions made in its laboratories or under its contracts rather than to prevent others from having access to or use of the invention. However, the fact that this policy is defensive does not mean that an effort should not be made to obtain the widest reasonable scope of patent protection. The best patents are obtained when D-1 is made aware of a patentable invention or discovery while the experimental work is still in progress. Thus, if you have any reason to believe that your work may be patentable, notify D-1 at the first opportunity.

Walterscheid looks at an invention of Ed Onstott's, CMB-8. The apparatus has been patented as a method of desalting water and is being patented as a device to separate rare earths.



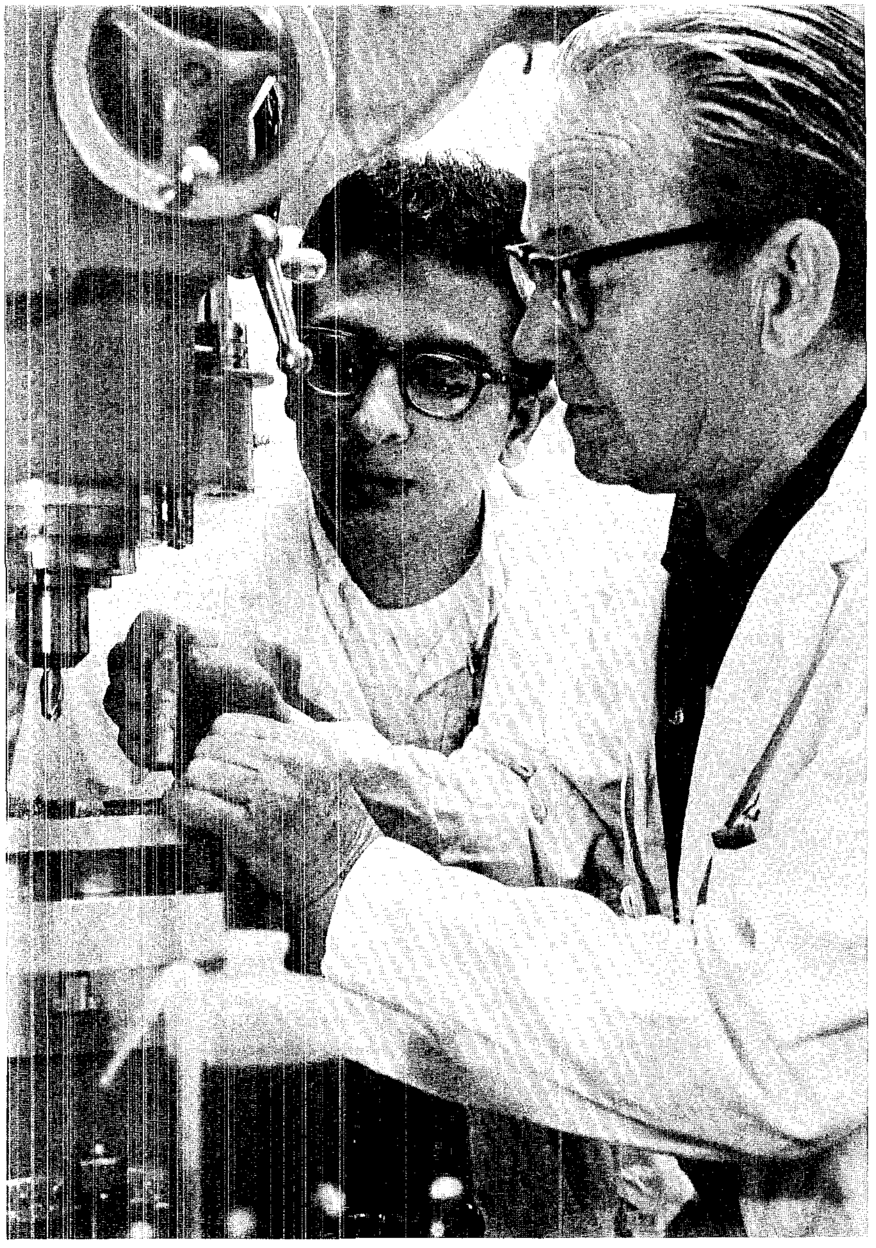
32 Branch Shops

Rich in experience and ingenuity

By Ken Johnson

Peoplewise, M. W. (Mac) McCloskey leads one of the largest groups in the Los Alamos Scientific Laboratory's Shop department, but he seldom sees all of its members at the same time and place. Only during periodic safety meetings attended by all department employees, do they come together. But, even then, they are mixed in the crowd so he can't look into it and say, "There's my group."

The nearly 150 members of his group, SD-5, are scattered throughout the Laboratory in branch machine shops which are geared to



Left, Gaza (Gus) Nagy, foreman of Branch Shop 16, and M. W. (Mac) McCloskey, SD-5 group leader, discuss a job that will be done in Nagy's shop Rough sketches such as the ones shown here are typically all that branch machinists need to do a job. Below, Pat Pallone works on a portable capacitor bank that was built in Shop 16. Right, Fred Flores, Jr., a machinist trainee, temporarily assigned to Nagy's shop, learns from Floyd Evans.

meet the requirements of specific technical groups.

Individually, McCloskey, an employee of the department for more than 18 years and a group leader for the past six, sees all SD-5 members frequently. But, he goes to see them rather than to take up valuable machine-time and man-hours by having them come to see him. He is continually traveling from branch shop to branch shop, including some that are located at the Laboratory's most remote sites, coordinating activities between them and the department's main shop. His group is made up of the most experienced machinists available at the Laboratory. "The average experience of branch shop machinists is at least 20 years," he said.

Exceptions to the rule are recently employed machinists who have not received their security clearances and others who have been accepted into the Shop department's training program. A machinist who has been hired by the department and is awaiting clearance is often temporarily as-

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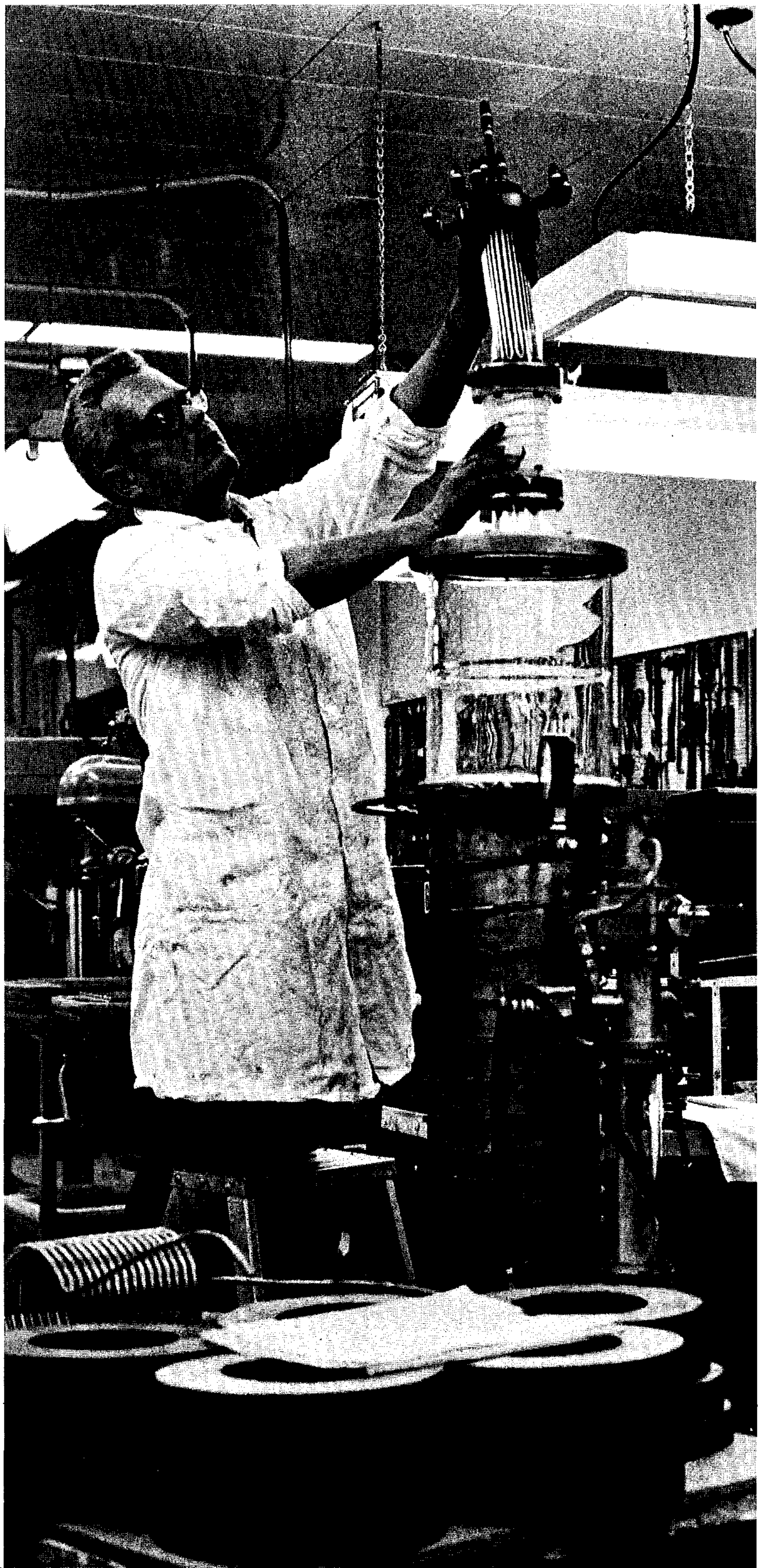
John Ahearne mounts an inductor in a plasma torch that was built in Shop 16.



signed to a branch shop in an unrestricted area. Machinist trainees, which are accepted in limited numbers each year, are assigned to branch shops for short periods of time where they receive on-the-job training.

Most of the branch shops, McCloskey said, absorb these temporary assignees easily because they have heavy work-loads. On the average, eight to 10 shops are operated on an overtime basis each week. "A machinist can work a maximum of eight hours overtime per week," the group leader said. "When they're required to work overtime, they generally do it in four hour shifts after supper on weekdays so they don't have to work Saturdays."

Machinists in the branch shops are generally those who have the most machine-years at LASL. When there is a vacancy, the man in the main shop who has the most years of experience is generally given the first option to transfer to a branch shop.

"A branch shop machinist has more freedom to use his own ingenuity than a machinist in the main shop," McCloskey said. This is because a machinist in a branch shop is not as tightly bound to blueprint specifications as one in the main shop. A branch employee works largely from rough sketches and verbal orders from scientific personnel in the groups he serves. In this way, the end product is much a result of his own engineering talent.

In all, there are 32 branch machine shops, numbered 16 through 47, each of which has a foreman and from one to 15 men, all of whom are machinists. The latest shop, number 47, is temporarily situated in the Los Alamos Meson Physics Facility Equipment Test Laboratory where accelerator components and associated parts are being machined. It will eventually be relocated near the facility's target areas and will be staffed by eight machinists.

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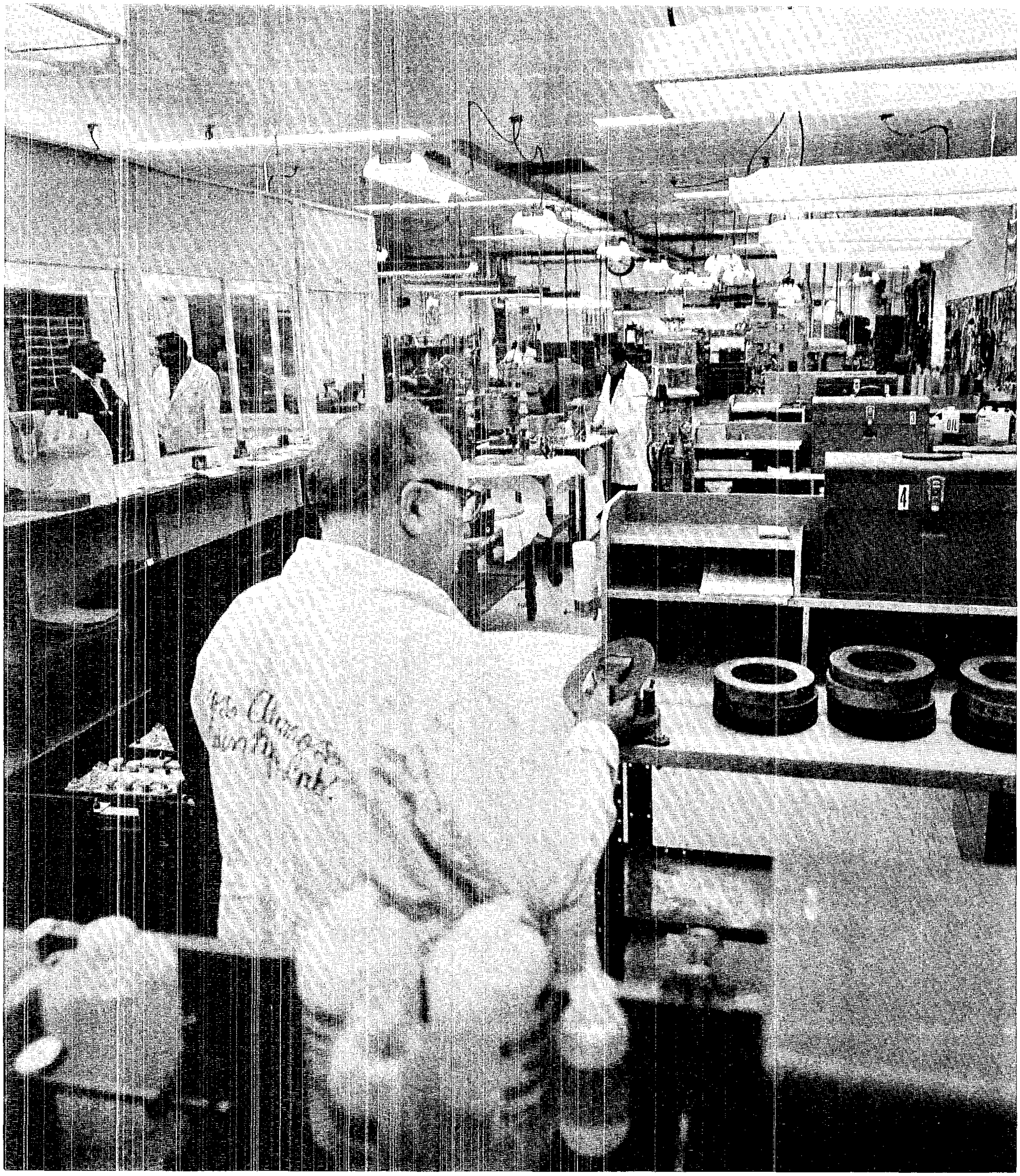


Overall view of Shop 16 is typical of the 32 branches scattered throughout the Laboratory. Pallone is in the foreground. In the office at left are McCloskey and Nagy. In background are Evans and Ahearne.

A new branch shop, number 48, will soon go into operation in the Scyllac building, and will be staffed by three machinists. McCloskey noted that equipment has been purchased and is presently being stored until space for the shop is completed.

Shop 48, like its predecessors, will have adequate but limited equipment. Although geared for the average work-load of the groups it serves, a branch machine shop is not completely independent of others or of the main shop. When the work load becomes too heavy in any of them, a part of it can be "farmed" out to another branch or to the main shop. A job can also be transferred to another shop if its machinery is better suited for it. For example, Shop 29, which serves Group GMX-7, is better equipped than most branches for mass production of items. Here hundreds or thousands of items, each identical to the one before it, can be produced more rapidly than in most other branch shops where each article, regardless of identity, is a separate job. The main shop, in addition to having a vast selection of equipment has some that is computerized. Numerical control machines are programmed for jobs, and tapes are punched that automatically guide the fabrication of articles. "Some numerical control machines," McCloskey said, "are for point to point machining (flat surfaces) while others are for contouring (odd geometries). These machines are good for jobs that are repeated."

Because of size and type of production, it would be difficult to point out one branch shop as being typical. As close as one can probably come is to pick out a shop whose employees number about mid-way between one and 15, such as Shop 16. Other than having the lowest number of all the 32 branch shops, Shop 16 has yet another distinction. It is led by Gaza (Gus) Nagy who has more years of Laboratory experience than any other machinist in SD-5.

Nagy came to LASL in November of 1943, only a few months after Project Y was started, from Ford Motor Company in Detroit, Mich. He had graduated from the company's five-year machinist trade school in 1939. He then worked as a company apprentice. Apprenticeship was for 3,000 hours and generally took three years to complete but it was wartime and Nagy was working long hours, so he finished his apprenticeship much sooner than three years.

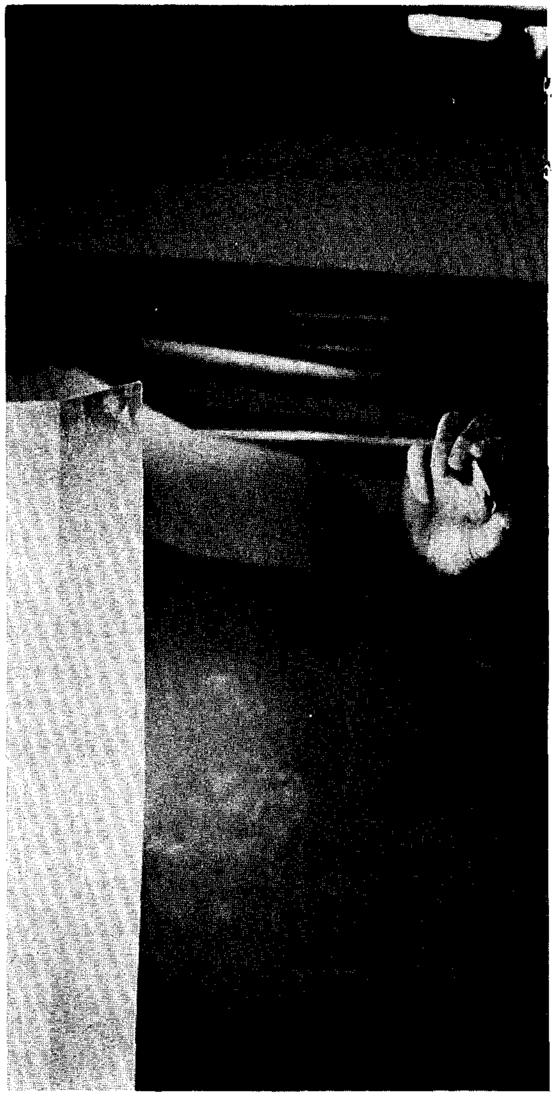
In 1943, a fellow-worker told Nagy that machinists were needed for some special and secret war effort. Inquiries by himself and three other men from the plant eventually led them to an office somewhere in Detroit. Although information given them here was vague, Nagy and his three companions were impressed with the thought that they could work on a "secret" wartime project.

Machinists, however, were badly needed for production of military equipment and materials and, in 1943, it was almost impossible for one to quit a job. "Well," said Nagy, "the guy we talked to told me to tell my employer that I was quitting and not to worry about him giving me a hard time. He said he would take care of the problem and he did.

"All we knew was that we were going to Santa Fe, New Mexico. But, a WAC picked us up in Lamy and brought us to Los Alamos."

There were two shops at Los Alamos at the time, designated by the letters C and V. Nagy worked in C shop for about a year and then the two shops were combined. He was assigned to a small shop in "D" building in the old technical area where the Los Alamos Inn is now located. "It was a one-man shop with a lathe and a drill press," Nagy said. "They had to have someone there to do odd jobs for scientists."

This was apparently one of the Laboratory's first branch shops. Nagy continued to work there until 1952 when the CMR building was completed and then was transferred to its branch shop. He has been at the CMR building ever since.



"We do just about anything here that scientific personnel want done. Induction heating equipment for CMB-7 is a big thing now. We build furnaces, coils and current concentrators for them." A current concentrator is an apparatus that focuses the maximum amount of electrical current on a specific area.

Much of this equipment, built for the Induction Heating Research and Development section of CMB-7, headed by Don Hull, is being used in testing materials for reactor fuel elements.

"A nice thing about working in one (a branch shop) is that after you build something, you get to see it work," said Nagy who, with Don Hull, CMB-7 Induction Heating section leader, left, and McCloskey, looks at a plasma torch through stained glass. The torch was built in Shop 16.

Shop 16 serves seven groups of CMF and CMB divisions. Many items are ordered by them for groups at other sites so, items produced in Nagy's shop are being used all over the Laboratory.

Probably 75 per cent of the jobs done here are fabricated from rough sketches or verbal orders and, they include everything from nuts and bolts to fixtures inside and out of stainless steel bell jars and dry boxes. Shop machinists work with whatever kind of material is necessary including all kinds of metal, ceramic, and glass.

In addition to Nagy, there are six other machinists in the shop, including one trainee, Fred Flores, who is finishing out a 10-week on-the-job training assignment. "We get trainees occasionally," Nagy said. "We help orient them on what to expect in a machine shop. We teach them how to use our tools, what they are for, and to do some machine work. Some of them are pretty green when they come here while others have from three to six months experience.

"A branch shop is convenient for scientists who need something small built, repaired or modified in a hurry. A nice thing about working in one is that after you build something, you get to see it work."

LASL-UNM Cooperative Experiment Marks Another First for the EPA

Placing the exposure board behind the tantalum target and lucite panel are Scott Jordan, University of New Mexico, and Phil Dean, H-4.

The Los Alamos Scientific Laboratory's Electron Prototype Accelerator (EPA) has been used for the first time in an experiment involving live animals. Brief but significant, the experiment was a cooperative venture between the Laboratory and the University of New Mexico whose Medical Department is conducting a study of the effects of radiation on living tissues.

Scott W. Jordan, associate professor of pathology at the University, said the experiment may provide some clue about the mechanics of radiation damage.

A problem encountered in the course of the studies, the associate professor said, is that after receiving a lethal dose of radiation there is no immediate change in body tissue and then only in certain highly sensitive tissue such as the spleen. It was thought, however, that if mice were to receive radiation doses many times greater than the lethal threshhold, tissue changes could be speeded up and magnified.

A total body dose of about 300 rads is considered to be lethal for humans. By comparison, the mice irradiated with x rays in the recent experiment at LASL received doses at five levels ranging from 10 thousand to one million rads.

Four mice were exposed at each of the five levels and an autopsy, to remove certain body tissues, was performed on each mouse immediately following exposure. The tissues were placed in a preservative to fix their response, due to radiation, until they could be observed through an electron microscope in the University's laboratories.

The mice were placed head-first into test tubes. The open ends of the tubes were then forced over cork stoppers which were glued to a board. This exposure board was then placed in line with the electron beam behind a tantalum target and a lucite panel. When the accelerated electrons struck the target; x rays were emitted in such a way that all test tubes received equal exposure.

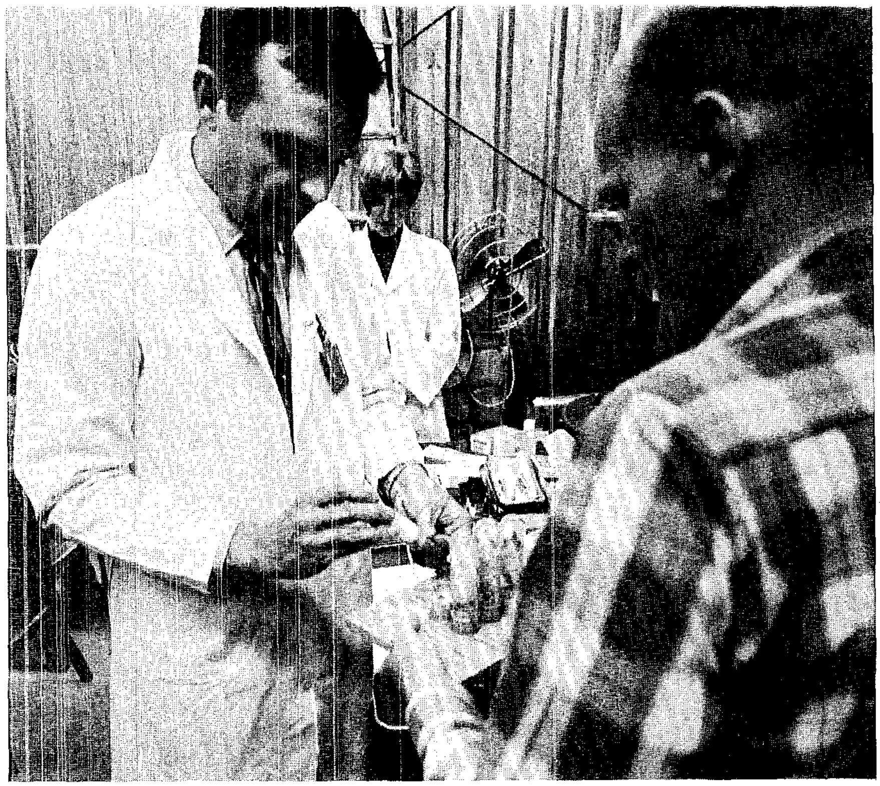
Dosimeters were used to monitor the x-ray beam. Additional dosimeters, to measure the actual exposure received by each mouse, were taped to the back of the test tubes.

Immediately following exposure of each group of mice, the heavy concrete door providing access inside the shielded accelerator room was opened and two men were allowed to enter. One of them, Phil Dean, H-4, who coordinated the experiment between the University and Laboratory groups, retrieved the exposure board on which the mice were held and, Ogden (Augie) Johnson, H-4, retrieved the dosimeters used to monitor the radiation exposure.

The mice were removed from the test tubes after each accelerator run and, while autopsies were being performed by Jordan and University Technicians Laura Pogue and Edna Ferrel, the tubes were reloaded with another group of four mice and taken to the accelerator room for irradiation.

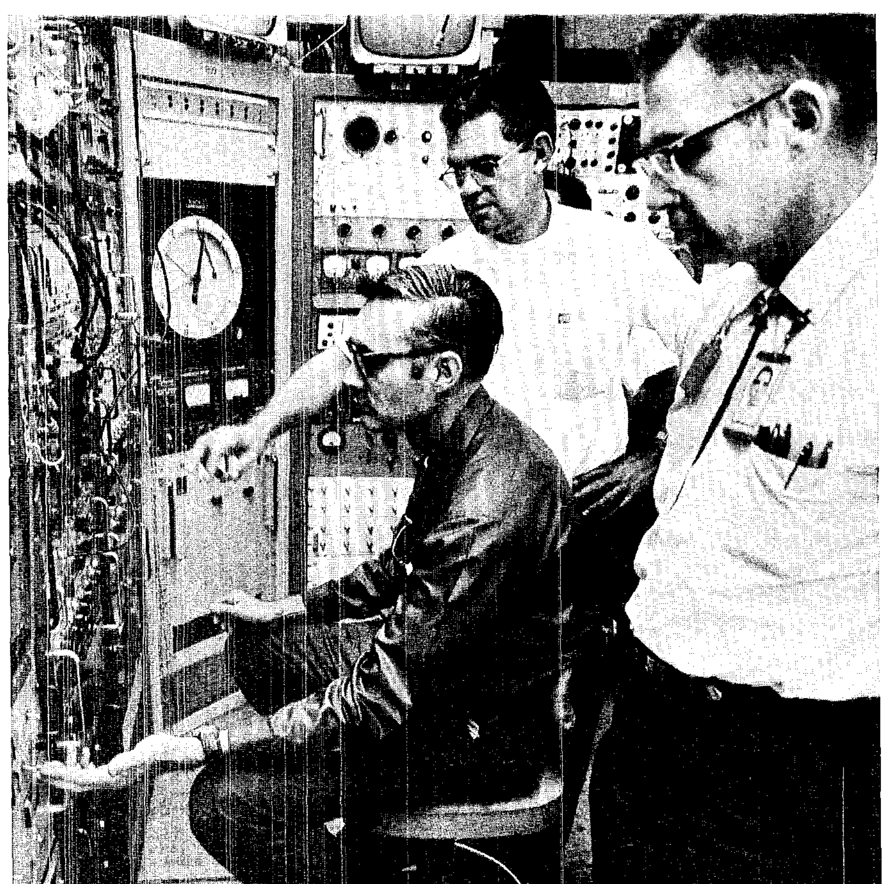
All five exposures were completed in an afternoon by MP division personnel who operated the accelerator and Health division members who were responsible for health physics, monitoring, and dosimetry in support of the experiment.

Jordan said the Electron Prototype accelerator is the only source known to him that can provide the desired intensity of x rays for such an experiment as this. He noted the accelerator may be used by the University for similar experiments in the future and that others may be conducted using the Los Alamos Meson Physics Facility accelerator when it is completed.



A mouse is inserted head-first into a test tube by Jordan. The tube's open end was then forced over the cork stopper on the exposure board held by Dean. In the background is Technician Edna Ferrel, University of New Mexico.

At the EPA control panel are Ken Chellis, MP-3, Ed Knapp, MP-3 group leader and Tom Putnam, MP-1 group leader.



short subjects

Karl S. Bergstresser, CMB-1, has been presented the John Dustin Clark Medal by the Central New Mexico Section of the American Chemical Society.

He is the third person to receive the award, which has been presented once every two years. Named after the first chairman of the Chemistry Department of the University of New Mexico, the medal is given for "meritorious service in the field of chemistry in New Mexico."

Candidates are nominated by members of the Section and, from these, one is selected to receive the award.

Laboratory Director **Norris E. Bradbury** has announced the discontinuation of the Summer Vacation Replacement program for the coming summer and the expansion of the Youth Opportunity Campaign.

Summer positions normally filled by Summer Vacation Replacements can be filled with short-term employees as long as the hiring group's ceiling point is not exceeded.

The Youth Opportunity Campaign will be expanded to about 100. The program is similar to the Summer Vacation Replacement Program except that it is for low-income and minority groups.

Two employees retired from the Laboratory in December.

Dionicio Montoya, PER-4 cook, retired Dec. 2 after being with the cafeterias since 1953. He and his wife, Ramoncita, will continue to reside in Los Alamos. He will manage the National Guard coffee shop in Santa Fe and she will continue to teach at San Juan Pueblo.

Rosinaldo Romero, GMX-3 chemical plant operator, third class, retired Dec. 1 after working 21 years in that group. He will reside in Ojo Sarco.

Ross Aviation, Inc. of Tulsa, Okla., has been selected for negotiation of a three-year contract to supply air service for the Atomic Energy Commission to various locations in the United States, including Los Alamos, and occasionally overseas.

This service has been provided by Carco Air Service, Inc. since 1948. The Commission's contract with Carco, scheduled to expire Dec. 31, has been extended through Jan. 1970. Ross Aviation is expected to take over the service about Feb. 1, 1970.

The agreement will cover regular scheduled round trip flights between Albuquerque and Los Alamos, and other air transportation as required by the AEC.

Thomas F. Turner, MP-2, has retired. For his contributions in meson physics while employed by the Laboratory, he was presented with an album of photographs depicting his work in MP division and a letter of commendation from division officials.

Two former Shop department employees, **James W. Nobel** and **Vernon Howard,** died recently.

Nobel, Los Alamos, died Nov. 22. He is survived by his wife, Ethel, two sons, a stepson, and a stepdaughter.

Howard died Nov. 27 in Bradenton, Fla. He is survived by his wife, Emma.

Edward R. Flynn, P-DOR, has been awarded a North Atlantic Treaty Organization (NATO) Postdoctoral Fellowship in Science to do Van de Graaff experiments at the Niels Bohr Institute in Copenhagen, Denmark.

Flynn will spend one year in Copenhagen under the NATO program which is administered in the United States by the National Science Foundation. Tentatively, he plans to begin the program in August under a Professional Research and Teaching Leave granted by the Laboratory.

Flynn was one of 452 applicants for 45 fellowships.

the technical side

Presentation at Joint General Scientific Assemblies of the Association of Geomagnetism and Aeronomy and the Association of Seismology and Physics of the Earth's Interior, Madrid, Spain, Sept. 1-12:

"The Effect of a Time-Dependent Electric Field on Trapped Particle Fluxes" by E. W. Hones, Jr., P-4 and J. G. Roederer, University of Denver

"Estimation of the Electric Field in the Quiet Magnetosphere as Deduced from Trapped Particle Flux Asymmetries" by J. G. Roederer, University of Denver, and E. W. Hones, Jr., P-4

Presentation at Third ESLAB/ESRIN Symposium on Intercorrelated Satellite Observations Related to Solar Events, Noordwijk, Holland, Sept. 16-19:

"Experimental Observations in the Magnetotail During an Interplanetary Disturbance" by E. W. Hones, Jr., P-4

"The Association of Energetic Storm Particles with Interplanetary Shock Waves" by S. Singer, P-4

Presentation at the Fall Uranium Meeting, Sandia Corporation, Albuquerque, Sept. 30-Oct. 2:

"The Fabrication of Uranium Test Vessels by Direct-Extrusion, Back-Extrusion, and Electron Beam Welding" by D. J. Sandstrom, CMB-6

Presentation at Ninth Thermal Conductivity Conference, Iowa State University, Ames, Oct. 6-8:

"Thermal Diffusivity of ATJ-S Graphite From 100° to 3000° K" by B. H. Morrison, N-1

Presentation at classified colloquium at Bell Telephone Laboratories, Whippany, N.J., Oct. 20-21:

"Some Applications of Plasma Simulation Techniques to HANE Phenomenology" by R. L. Morse, P-18 and C. R. Shonk, J-10

Presentation at the Fifth Annual George H. Hudson Symposium, State University of New York, Plattsburgh, Oct. 20-22:

"Magnetic Resonance of Chlorine-35 and Oxygen-17 in Vanadium (IV)-Chloride Solutions" by A. H. Zeltmann, CMF-2 and L. O. Morgan, University of Texas, Austin

Presentation at Chemistry Department Seminar, Colorado College, Colorado Springs, Oct. 22:

"The Heaviest Elements: Have We Reached the End of the Periodic Table?" by J. D. Knight, J-11

Presentation at classified session of the 1969 Thermionic Conversion Specialist's Conference, U.S. Naval Post Graduate School, Monterey, Calif., Oct. 23-24:

"Space Power Supplies Based on ZrH_x-Moderated Thermionic Reactors" by T. G. Frank, N-5

Presentation at AEC - Sponsored Symposium on Safeguards Research and Development, Los Alamos, Oct. 27-30:

"Los Alamos Scientific Laboratory Safeguards Research and Development Program" by G. R. Keepin, R. H. Augustson, and R. B. Walton, all N-6

Presentation at General Meeting of LAMPF Users Group, University of Colorado, Boulder, Oct 29:

"Medical Radiosotopes From LAMPF" by H. A. O'Brien, Jr., K-2

Presentation at the Fourth ALO and ALO Contractor Health Protection Conference, Pinellas Peninsula Plant, Clearwater, Fla., Oct. 28-29:

"Evaluating the Training Program" by D. D. Meyer, H-1

"The Application of Thermoluminescent Dosimeters in Measuring Radiation Exposures" by E. A. Bemis, H-1

"Air Sampling Techniques" by H. F. Schulte, H-5

Presentation at seminar at the University of New Mexico, School of Medicine, Albuquerque, Oct. 30:

"Preparation of New Medical Radionuclides" by H. A. O'Brien, Jr., K-2 (invited)

Presentation at the American Physical Society Meeting, Division of Nuclear Physics, Boulder, Colo., Oct. 30-Nov. 1:

"Pion Production in Proton Nucleus Interaction at 740 MeV" by H. A. Thiessen, MP-4 (invited)

"Pairing Vibrations and Isospin" by O. Hansen, P-DOR (invited)

"The New Isotope 11.5-min ^{152}Nd and a Low Spin Isomer of ^{152}Pm" by Darleane C. Hoffman, Francine O. Lawrence and W. R. Daniels, all J-11

"Direct-Reaction Fission of Odd-A Uranium and Plutonium Isotopes" by H. C. Britt, P-DOR and J. D. Cramer, W-8

"Proton-Proton Scattering at 10 MeV" by N. Jarmie, R. Brown, R. Hutson and J. L. Detch, all P-DOR

"An Exact Calculation of the Penetrability Through Two-Peaked Fission Barriers" by J. D. Cramer, W-8 and J. R. Nix, T-9

"Polarization Calibration of the LASL LAMB-Shift Source" by G. G. Ohlsen, P. W. Keaton, both P-DOR, G. P. Lawrence, J. L. McKibben, both P-9 and D. D. Armstrong, P-12

"Physics with Intense Neutron Sources" by A. Hemmendinger, W-8

"Biographical and Historical Review—George Gamow" by C. L. Critchfield, T-9

"Nuclear Reaction Cross Sections by Perturbation of the Inverse Level Matrix" by D. R. Harris, T-DOT

"Inelastic Scattering of Tritons and Protons from 210-Pb" by C. S. Ellegaard, P. B. Barnes, both Carnegie Mellon University, Pittsburg, Pa., E. R. Flynn, P-DOR, and G. J. Igo, UCLA

"Triton Scattering and Reactions" by E. R. Flynn, P-DOR (invited)

continued on next page

"Polarization of 22 MeV Neutrons Elastically Scattered from Liquid Tritium" by R. K. Walter, P-3, J. C. Hopkins, J. T. Martin, A. Niiler, and J. D. Seagrave, all P-DOR, E. C. Kerr and R. H. Shermon, both CMF-9, and D. R. Dixon, Brigham Young University, Provo, Utah

"The LASL Meson Factory" by D. R. F. Cochran, MP-6 (invited)

"Neutron-Helium Polarization at 11.0, 17.7, 23.7, and 25.7 MeV" by W. B. Broste, J. E. Simmons, both P-DOR and G. S. Mutchler, Rice University, Houston, Texas

"Neutron Polarization in the T(d, n) ^{4}He Reaction with an 11.4 MeV Polarized Deuteron Beam" by J. E. Simmons, W. B. Broste, and G. G. Ohlsen, all P-DOR, G. P. Lawrence, and J. L. McKibben, both P-9

"Plutonium Fission Isomers" by S. C. Burnett, H. C. Britt, W. E. Stein, all P-DOR, and B. H. Erkkila, P-12

"The ^{206}Pb (t, p) ^{208}Pb and ^{210}Pb (p, t) ^{208}Pb Reactions at 20 MeV" by G. Igo, UCLA, P. D. Barnes, Carnegie Mellon University, Pittsburg, Pa., and E. R. Flynn, P-DOR

"Analog States of ^{89}Sr" by E. R. Cosman, R. Kalish, both MIT, D. D. Armstrong, P-12 and H. C. Britt, P-DOR

Presentation at seminar at the State University of New York, Fredonia, Oct. 31:

"DNA Synthesis in Ultraviolet-Light Irradiated Resistant and Sensitive Mutants of Hemophilus Influenzae" by G. J. Kantor, H-4 (invited)

Presentation at Electronic Density of States Symposium, National Bureau of Standards, Washington, D.C., Nov. 3-6:

"Calculated Effects of Compression Upon the Band Structure and Density of States of Several Metals" by E. A. Kmetko, CMF-5

Presentation at Plutonium Information Meeting, Argonne National Laboratory, Chicago, Ill., Nov. 4:

"Fermi Surface Topology and Properties of Delta Plutonium" by E. A. Kmetko, CMF-5

"Low Temperature Electronic Properties of LaPu and PrPu Alloys" by H. H. Hill, CMF-5

Presentation at Second International Conference on Accelerator Dosimetry and Experience at SLAC, Stanford, Calif., Nov. 5-7:

"DTF Shielding Calculations at 800 MeV—LAMPF" by H. I. Israel, H-DO and D. R. F. Cochran, MP-6

Presentation at Michigan Section of American Nuclear Society Meeting, Detroit, Mich., Nov. 6:

"Status of the Kinetic Intense Neutron Generator Reactor Concept" by L. D. P. King, Dir. Off.

Presentation at Ninth Annual Meeting of the American Society for Cell Biology, Detroit, Mich., Nov. 6-8:

"Nucleotide Content of Histones and Histone Fractions" by G. R. Shepherd, B. J. Noland, and C. N. Roberts, all H-4

"Glycopeptides from Suspension-Cultured Chinese Hamster Cells: Intracellular, Cell Surface and 'Desquamating' Species" by P. M. Kraemer, H-4

Presentation at seminar at Atomic Energy of Canada Ltd., Chalk River, Ontario, Canada, Nov. 10:

"Research on Histones at Los Alamos" by G. R. Shepherd, H-4 (invited)

Presentation at Integrated Contractors Meeting on Metallic and Inorganic Coatings, Sandia Laboratories, Livermore, Calif., Nov. 12-13:

"Electroforming Thin - Walled Shapes" by A. G. Fox, J. K. Gore, and R. Seegmiller, all CMB-6

what's doing

PUBLIC SWIMMING: High School Pool—(beginning Jan. 5) Mondays through Wednesdays, 7:30 to 9 p.m.; Saturdays and Sundays, 1 to 6 p.m.; Adult Swim Club, Sundays, 7 to 9 p.m. Pool is closed through Jan. 4.

NEWCOMERS CLUB: Installation dinner, Jan. 21, Elks Lodge, cocktails—6:30 p.m., dinner—7 p.m. For information call Mrs. Fran Talley, 662-4110.

SIERRA CLUB: Luncheon meeting at noon, first Tuesday of each month, South Mesa Cafeteria. For information call Brant Calkin, 455-2468, Santa Fe.

MESA PUBLIC LIBRARY: Through Jan 12.—Paintings by Mary Stovall; Jan. 13 through Feb. 2—Paintings by James Messimer; Jan. 15 through Feb. 2—Los Alamos Opera Guild Displays.

OUTDOOR ASSOCIATION: No charge, open to the public. Contact leader for information regarding specific hikes. (January hikes require skis or snowshoes).

Jan. 11—Cerro Grande to Sawyer's Hill—Reed Elliott, 2-4515.

Jan. 25—Pipeline Road—Walter Green, 672-3203.

Feb. 1—To be announced—Walter Green, 672-3203.

RIO GRANDE RIVER RUNNERS: Meetings scheduled for noon, second Tuesday of each month at South Mesa Cafeteria. For information call Cecil Carnes, 672-3593.

LOS ALAMOS ARTS COUNCIL: Jan. 11, 7:30 p.m., Lodge; Forrest Strong to demonstrate pottery making.

LOS ALAMOS SKI CLUB: Pajarito Mountain, tow runs from 9 a.m. to 4 p.m., weekends and holidays. Rental equipment available. Ski School schedule—Group lessons, 6 to 12 students, 1½ hours, 10:30 a.m. and 1:30 p.m. Semi-private lessons, up to 5 students, 1 hour, 10:30 a.m., noon, and 1:30 p.m. Young children's class, kindergarten and up, 6 to 12 students, 12:15 p.m.

LOS ALAMOS SKATING ASSOCIATION:

Monday—General skating—3 to 5 p.m. and 7 to 9:30 p.m.

Tuesday—"Ladies 'n Tots" 9:30 to 11:30 a.m.; General Skating—3 to 5 p.m.; Figure Skating Club—6 to 7 p.m.; General Skating —7 to 9:30 p.m.

Wednesday—General Skating—1 to 5 p.m.; and 7 to 9:30 p.m. (Evening hours may be changed to accomodate a youth hockey program for 11 to 14 year olds.)

Thursday—"Ladies 'n Tots"—9:30 to 11:30 a.m.; General Skating—3 to 5 p.m.; Figure Skating Club—6:30 to 7:30 p.m.; "Adults Only"—7:30 to 10 p.m.

Friday—General Skating—3 to 5 p.m., and 7 to 9:30 p.m.

Saturday—Youth Hockey Program during morning; General Skating—2 to 4:30 p.m. and 7 to 9:30 p.m.

Sunday—Reserved during morning for "pro" lessons, both group and individual; General Skating—2 to 4:45 p.m.; Figure Skating Club—6:30 to 7:30 p.m.; "Adults Only"—7:30 to 10 p.m.

MOUNTAIN MIXERS SQUARE DANCE CLUB: For further information call Mrs. Alice Wynne, 2-5164.

Dec. 31—New Year's Eve Dance, Canyon School, 9 p.m. to 12:30 a.m.

Jan. 17—Regular Dance, Canyon School, 8 p.m., Bones Craig.

Jan. 31—Northeast District Dance, Kearny School, Santa Fe, 8 to 11 p.m. Mystery Caller (Hosted by the Sashay Rounders)

"Protection and Corrosion Testing Uranium" by R. Seegmiller, A. G. Fox, and J. K. Gore, all CMB-6

"Chemical Milling of Aluminum" by J. J. Glass, F. M. Montoya, and J. K. Gore, all CMB-6

Presentation at the American Physical Society Meeting, Division of Plasma Physics, Los Angeles, Calif., Nov. 12-15:

"A Fast Z-Pinch" by J. N. DiMarco and L. C. Burkhardt, both P-14

"X-Ray Measurements on Plasma Focus" by P. J. Bottoms, J. W. Mather, J. P. Carpenter, K. D. Ware, and A. H. Williams, all P-7

"Explosive Generator Driven coaxial Plasma Gun" by I. Henins, J. Marshall, both P-17, R. A. Jeffries, and D. M. Kerr, Jr., both J-10

"An Explosive Generator Power Supply for Driving a Plasma Gun" by C. M. Fowler, D. B. Thomson, R. S. Caird, W. B. Garn, all GMX-6 and K. J. Ewing, GMX-3

"Measurement of the Resonant Charge Exchange Cross-Section in a Potassium Q-Machine Plasma Column" by H. Dreicer, D. B. Henderson, D. Mosher, F. E. Wittman, all P-13 and K. Wolfsberg J-11

"Two-Dimensional, Two-Species PIC Simulations of Collisionless Shocks" by C. R. Shonk, J-10 and R. L. Morse, P-18

"MHD Stability of a Diffuse Screw Pinch" by J. P. Freilberg, P-18

"Numerical Method for Studying Linear Stability of Highly Inhomogeneous Plasmas" by J. P. Freidberg, R. L. Morse, and C. W. Nielson, all P-18

"Calorimetric Measurement of X-Ray Flux from Plasma Focus" by A. H. Williams, J. P. Carpenter, P. J. Bottoms, K. D. Ware, and J. W. Mather, all P-7

"Voltage Scaling for Megajoule Plasma Focus Systems" by K. D. Ware, J. W. Mather, P. J. Bottoms, J. P. Carpenter and A. H. Williams, all P-7

"Measurement of Shorting Currents from a Theta-Pinch Plasma" by K. S. Thomas, P-15

"Dynamic Stabilization of the Z-Pinch by Linear Multipole Magnetic Fields I" by H. J. Karr, P. R. Forman, and J. A. Phillips, all P-14

"Dynamic Stabilization of the Z-Pinch by Linear Multipole Magnetic Fields II" by J. A. Phillips, P. R. Forman, A. Haberstich, H. J. Karr, and A. E. Schofield, all P-14

"A Variational Approach to the Numerical Analysis of Vlasov Plasmas" by H. R. Lewis, P-18

"A Bifurcation Problem in E-Layer Equilibria" by B. M. Marder, F-18 and H. Weitzner, New York University

"The Angular Distribution of Efflux from an Atomic Beam Nozzle" by D. B. Henderson, P-13

"High Beta MHD Equilibrium and Stability of Multipoles" by D. A. Baker, P-18 and L. W. Mann, T-5

"Experiments on a Three-Meter Collisionless Plasma Column" by W. E. Quinn, R. F. Gribble, and E. M. Little, all P-15

"The Measurements of ECH Q-Machine Plasma Properties" by J. McLeod, D. E. Michael, and H. Dreicer, all P-13

"Instabilities Associated with Heat Conduction in the Solar Wind and Their Consequences" by D. W. Forslund, T-12

Presentation at Information Colloquium at DeVargas Junior High School, Santa Fe, Nov. 14

"Vietnam" by R. W. Freyman, P-1

Presentation at the 62nd Annual Meeting of American Institute of Chemical Engineers, Washington, D.C., Nov. 16-20:

"Cryogenics and Nuclear Physics" by E. F. Hammel, CMF-9

Presentation at Systems Engineering Laboratories Fall Users' Group Meeting, Las Vegas, Nev., Nov. 17:

"Interactive Graphics for Accelerator Control" by H. S. Butler and Sally Shlaer, both MP-1

Presentation at Joint Colloquium of the Astronomy and Physics Departments, University of Washington, Seattle, Nov. 17:

"Quasi-Stellar Objects" by N. J. Terrell, Jr., P-DOR (invited)

Presentation at the Numerical Analysis Seminar, Stanford University, Calif., Nov. 17:

"The Numerical Solution of Singular Perturbation Problems for Ordinary Differential Equations" by F. W. Dorr, C-6 (invited)

Presentation at the Robert A. Welch Foundation Conference, Houston, Texas, Nov. 17-19:

continued on next page

new hires

C division

Katherine L. Thom, Santa Fe, C-3

CMB division

Alfonso L. Martinez, Santa Fe, CMB-6
Antonio F. Roybal, Santa Fe, CMB-11
Piper A. Mason, Jr., Las Vegas, Nev., CMB-14

CMF division

John C. Norvell, Roskilde, Denmark, CMF-9 (postdoctoral)

Engineering department

Barbara A. Ritchie, Los Alamos, ENG-3 (casual—rehire)
Vernie C. Hazlett, Jr., Las Vegas, Nev., ENG-4

H division

Bernice B. Gettemy, Los Alamos, H-2

J division

Sharon K. Velarde, Velarde, N.M., J-1
Eric M. Jones, Madison, Wis., J-10

K division

George A. Belisle, Reno, Nev., K-4
James C. Morrow, Pascagoula, Miss., K-4

P division

Manfred Drosg, Klagenfurt, Austria, P-DOR (postdoctoral)

Personnel department

Lula L. Mitchell, Los Alamos, PER-4 (casual)

Shop department

Frank J. Cordova, Los Alamos, SD-DO

20

years ago in los alamos

Culled from the Dec., 1949, files of the Santa Fe New Mexican by Robert Porton

No Excuse for Not Paying Property Taxes

Some Los Alamos residents think they don't need to pay personal property taxes if they didn't receive declaration forms through the mail, County Assessor Ray Sena, Jr., said Friday. "Declaration forms are available in County offices for those who didn't receive them," he declared. Los Alamos residents were being subjected to their first local taxation; Los Alamos became a county last June.

AEC Faces Shortage of Electricity

While public attention in the past week has been drawn to the possibility of a water shortage in 1951, AEC and Zia Company officials have been working on a solution to a more immediate problem—threatened shortage of electricity. However, should a major power failure come, due to overload, the scientific laboratories would not be affected, said Assistant Manager Elmo Morgan. Electrical circuits here are arranged so that residential areas would go out first should the load become too great, he said. The Zia Company, maintenance contractor for the AEC, yesterday began a campaign to conserve power in the Atomic City, with a wave of posters and other public warnings against overloading circuits.

Authority Sought to Continue Town Council

The Town Council has submitted a proposal to the AEC under which it hopes to continue operation in Los Alamos, it was revealed yesterday. The Council has in the past received income from several AEC concessions for use in health, welfare and recreation activities. However, recent negotiations have failed to result in a contract for the group's continued operation. The Council has no legal power, but was founded in Los Alamos as a sounding board for residents.

Senate Group to Visit Hill

Six U.S. Senators, members of the Senate Public Works Committee, and four of their staff members will be guests of the Lions and Kiwanis Clubs Monday night at a dinner in the Civic Club. The Congressmen will visit the Hill following hearings in Santa Fe by the Public Roads Subcommittee. Leading the group will be Senator Dennis Chavez of New Mexico. State Police will escort the Congressional party from Santa Fe to the Otowi bridge, where it will be met by a security force convoy.

"Heavy Element Synthesis by Prompt Multiple Neutron Capture" by G. A. Cowan, J-11 (invited)

Presentation at Physics Department Colloquium, Oregon State University, Corvallis, Nov. 18:

"Quasi-Stellar Objects" by N. J. Terrell, Jr., P-DOR (invited)

Presentation at Meeting of Society of Experimental Stress Analysis, Albuquerque, Nov. 18:

"Model Studies of Blast Effects" by C. A. Anderson, GMX-3

Presentation at Columbia University Colloquium Series, New York, Nov. 19:

"Plastic Deformation Under Multiaxial States of Stress" by S. S. Hecker, CMF-5

Presentation at 13th International Xerox Data Systems Users' Group Meeting, Las Vegas, Nev., Nov. 21-22:

"The LASL 930 Real Time Fortran II Compiler" by M. P. Kellogg, P-9

Presentation at Powder Metallurgy Joint Group Annual Meeting, London, England, Nov. 24-26:

"The Friction Index and Pressing Characteristics of Spherical Stainless Steel Powder and Oxidized Copper Powder" by H. Sheinberg, CMB-6 (invited)

Presentation at American Physical Society Meeting, Division of Fluid Dynamics, Norman, Okla., Nov. 24-26:

"Backward Facing Compression Wave in Expanding Explosive Products" by W. C. Davis, GMX-8, and D. Venable, GMX-11

"A Phermex Study of the Flow Behind a Detonation Wave in Composition B" by W. C. Rivard, GMX-10, and D. Venable, GMX-11

"Flash X-Ray Pictures of Sharply Defined Rarefaction Waves in Explosive Products" by W. C. Davis, GMX-8, and D. Venable, GMX-11

"Calculated One - Dimensional Detonation Instability for Induction-Zone Kinetics" by W. Fickett, J. D. Jacobson, both GMX-10, and G. L. Schott, GMX-7

Representatives of the University of California met for two days in Los Alamos seeking local opinion on the naming of a successor to Director Norris Bradbury who has announced his intention to resign "not later than October 1970." The representatives were (left to right) William G. Young, vice chancellor UCLA; Earl C. Bolton, university vice president; and John W. Oswald, executive vice president.

Trinity Avenue and the Los Alamos County building are seen from a new viewpoint, atop the new Mountain Bell Telephone building. The photograph was taken by PUB-1 group leader, Bill Regan.